

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 June 2003 (26.06.2003)

PCT

(10) International Publication Number
WO 03/052709 A1

(51) International Patent Classification⁷: **G07G 1/14**, 1/00,
G07F 19/00, G06F 17/60

(21) International Application Number: PCT/ZA01/00203

(22) International Filing Date:

14 December 2001 (14.12.2001)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant and

(72) Inventor: **POHL, Angus** [ZA/ZA]; P.O. Box 13994, Hatfield, 0028 Pretoria (ZA).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

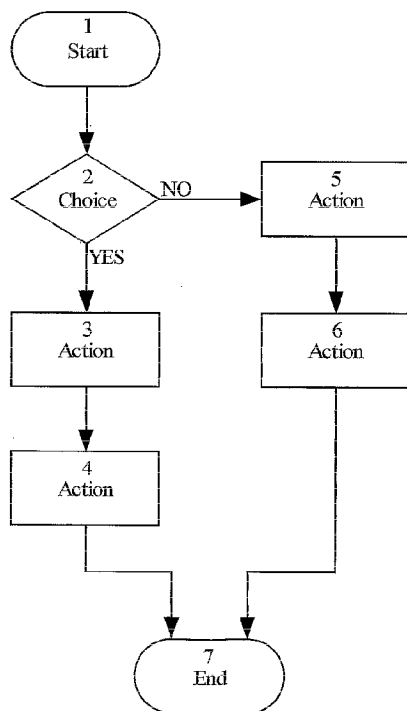
- as to the identity of the inventor (Rule 4.17(i)) for all designations
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations

[Continued on next page]

(54) Title: COMPUTER AUTOMATED ELECTRONIC SMALL CHANGE HARVESTING METHOD

Consecutive flow diagrams of the steps that take place in CRx of FIG.1

Point Of Sale Cash Register
(Choice to contribute indicated before action)



(57) Abstract: An automatic small change money rounding up, and/or collecting method used within the retail sector, and/or electronic banking system, and/or any other form of money transferring or trading system between two or more trading parties. A nominal pre-determined and/or calculated and/or indicated small change money amount automatically being rounded up from the balance of a product purchased and the money given for the purchase, and or any monetary donations made separately or in addition to the rounded up amount. Collected small change money is electronically separated from other trading money and transferred through the retail and/or electronic banking system into a pre-determined external bank account for collection. The invention presents a solution to the lack of effective mass small change money collection methods in the world from the public in a seamless and effortless manner on behalf of charities everywhere.



— of inventorship (Rule 4.17(iv)) for US only

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

PATENT DESCRIPTION

Background Of The Invention

This invention relates to a method of conveniently involving the public and other trading parties with the option to “electronically” donate a pre-determined and calculated portion of their small change money for eventual charitable use. The seamless intent is to eliminate the use of existing card systems and/or other physical means of collection, by simply making the donating process part of daily transactions and thereby minimizing interruption.

The idea is to introduce a novel method to electronically collect “redundant” small change money from the public as they transact within the retail and banking sector of the economy. Everybody involved in buying and selling generates small change money on a regular basis, and more often than not is unsure of how to productively apply this money later on. Small change money can however be put to good use if effectively collected in a national effort, and then centrally controlled to optimally support accountable charity and human development organizations...

This invention also provides transparent electronic registration measures, encouraging a culture of giving to the needy, involve the retail and other business sectors with a social responsibility, and make the whole experience as effortless as possible!

Summary Of The Invention

According to a feature of the invention, this method is attained in a system with entry means for entering the price of a product into a cash register and for entering the amount of cash being paid, automatically pre-determined calculating means for determining the amount of the donation made based on the size of the purchase, and printout means for printing receipts indicating the amounts for products purchased, cash paid, and donation given.

The following is an example of the method as used within a retail cash register environment...

1. Customer purchases product (or products) for \$14,95.
2. Customer pays with \$20,00 bill.
3. Cashier pays back small change owed but keeps the automatically calculated and rounded up donation amount of 15c (according to example of formula included) on behalf of a “Collection Company”.
4. The automatic “rounding off” arrangement is made and established between retailer and customer by means of a pre-emptive (and maintenance) marketing campaign to educate the public in this regard. Communicating to the customer the charitable benefits and that he/she will always have the right of refusal.
5. Receipt issued will indicate the usual information such as date and place, products purchased, money paid, but also include the amount donated.
6. Rounding up calculations are made and based on the amount the customer has purchased for. For example: 5c from \$5,00 / 10c from \$10,00 / 20c from \$20,00 and so on. Calculations can be

altered or changed according to what is acceptable in different markets by means of a simple pre programmed mathematical re-configuration of cash registers or IT infrastructure.

7. Additional or “other” donations can also be collected through this mechanism and indicated as such on any receipt issued. (In such cases where people may want to donate extra small change money in their wallets, or want to donate more than the usual rounded off amount.)
8. All monies collected on behalf of the “collection company” are separated by the retailers and banks from their own profits, and electronically paid into the “collection company” bank account on a monthly basis. Retailers have the right to use all incoming “charity” money (up to every month’s end) for generating interest to offset any costs incurred by them.

According to an embodiment, the invention is available in a wide variety of establishments including retail establishments, restaurants, convenience stores, entertainment venues, and the banking sector etc.

These and other features of the invention are pointed out in the claims. Other objects and advantages of the invention will become evident when read in light of the accompanying drawings.

Brief Description Of Drawings

FIG.1 Block diagram of a system embodying retail store related features of the invention.

FIG.2 Consecutive flow diagrams of the steps that take place in CR_x of FIG.1

FIG.3 Block diagram of a system embodying features of the invention for generating donations from credit cards, debit cards, internet transactions, check payments, and all other bank related services used for transacting.

FIG.4 Flow diagram of the process that take place in CPU of FIG.3

Detailed Description Of Preferred Embodiments

In FIG.1, a system embodying the invention includes a central computer CC containing a central processor CPU and data storage DS. A communications system CS that may include telephone lines, satellites, or cables connects the central computer CC to a number of cash registers CR_x (where $x=1, \dots, M, \dots, N$) in retail outlets, such as shops, supermarkets, gasoline stations, department stores, etc. at locations remote from the central computer. Throughout this specification, the term x , when appended to the end of a reference character, is equal to $1, \dots, M, \dots, N$.

The communications system CS also connects the central computer CC to the regional / national computers of a particular retailer, bank or service provider, and ultimately to the “collection company” bank account for depositing all small change donations collected. Donations can be deposited according to a daily, weekly or monthly arrangement.

The *cash register* CRx includes four (4) additions to the existing keyboard configuration...

1. A button to de-activate automatically pre-calculated donations. Automatic donations are centrally activated and can only be de-activated if a particular customer so requests for his purchases made.
2. A button to activate donations. This button is used for stores where automatically pre-calculated donations have not been approved, but the manually activated service is offered to the public as they purchase.
3. A button to activate a service for donations only, or additional donations made over and above the usual small change rounding up method used. For an additional donation made, this button is simply activated after all other transactions have been completed to add an amount following its activation.
4. A cash back button to return all donations made by the most recent customer charged.

All transactions are electronically registered and donations automatically added on all receipts issued together with a thank you note for donations made. The terminal RTx reports donations directly to the central computer CC via the communication system CS. The central computer CC prints out periodic reports for interested parties on a need-to-know basis.

According to the invention, a consumer in a shop, supermarket, gasoline station, department store, etc. selects the desired merchandise and brings it to a clerk. The clerk inputs the price of all items in a cash register CRx by way of a register keyboard or a bar code reader and the register totals the price. The consumer then offers the clerk either the exact amount of cash or a sum exceeding the price, and the clerk enters that cash and the amount into the cash register. The cash register CRx then subtracts the price from the cash.

If the consumer gives the clerk the exact price nothing more need happen, unless the consumer wishes to make a specific donation. However, if the money offered the clerk exceeds the price, the consumer may, if he or she wishes, choose to receive the change fully or allow the donation of a portion or all of it. To do so, he or she simply instructs the clerk accordingly, unless the donations made take place automatically as advertised to the public in advance. Customers have the option to deny pre-calculated donations (as determined and based on the size of the purchase) at the point of sale.

All automatic and manually activated electronic small change donations are calculated according to the size of the purchases made. The ratio within the formula used can be adapted according to the economic standing of a country or the community where it will apply.

An example of a simple formula would be...

$$X = (\text{Purchase Total} / 100)$$

$$X = (\$20 / 100)$$

$$X = \$00,20c$$

Here follows a step by step example of the operation of a cash register CRx Manual and Automatic configuration (See flow charts of FIG.2.1 and 2.2).

FIG.2.1

1. **Start:** Cashier registers and calculates the cost for all customer products selected;
2. **Choice:** Cashier prompts customer for donation (or customer asks), and activates or ignores manual donation button. At this point the customer may also indicate extra donations given if required, upon which the cashier will also activate or ignore the "Donation Only / Extra" button;
3. **Action:** Customer pays for goods and possibly adds extra donation money according to previous request;
4. **Action:** Cash register automatically calculates customer donation based on size of purchase and subtracts this amount from balance of money left after purchase of goods. Any extra donations are at this point also calculated and registered as such;
5. (Action): Customer pays for goods purchased with no request to donate anything.
6. (Action): Cash register calculates goods purchased only;
7. **End:** Cash slip or receipt is issued for goods purchased, and indicates exact amount of donations made if applicable.

FIG.2.2

1. **Start:** Cashier registers and calculates the cost for all customer products selected;
2. **Action:** Customer pays for goods, possibly asking to donate extra money, which the cashier accepts and adds to the total amount after activating the "Donation Only / Extra" button;
3. **Choice:** At this point customer may choose to refuse automatic donation, if not the cashier proceeds to receive money for goods purchased and donation is automatically rounded up from balance of money left after purchase of goods. If the customer chooses not to participate in the automatic donation, the cashier activates the "Automatic Denial" button and the purchase takes place without any automatic donation;
4. **Action:** Cash register automatically calculates customer donation based on size of purchase and subtracts this amount from balance of money left over from goods purchased. Any extra donations are at this point also calculated and registered as such;
5. (Action): Customer pays for goods purchased without any donation;
6. **End:** Cash slip or receipt is issued for goods purchased, and indicates exact amount of donations made if applicable.

While most examples refer to cash transactions, the invention is also applicable to payment by credit card. That is, the customer may wish to have an amount charged to the credit card in excess of the price in order to make donations according to the invention. For purposes of this description the word cash is used also to embrace credit card payments, or any other method accepted by retailers, banks and service providers.

Note: The same small change rounding up method can also be used and is claimed by this invention for use in all electronic forms of transacting as offered by banks See claims made together with block diagram (FIG.3) and Flow diagram (FIG.4) embodying the method used.

In FIG.3, a system embodying the invention (for credit card transfers) includes a central computer CC containing a central processor CPU and a large data storage DS. A communications system CS that may include telephone lines, satellites, or cables connects the central computer CC to a number of other banks and branches, restaurants, movie houses etc. at locations remote from the central computer.

The communications system CS also connects the central computer CC to the regional / national computers of a particular banking group/s, and ultimately to the "collection company" bank account for depositing all small change donations collected. Donations can be deposited according to a daily, weekly or monthly arrangement.

A step-by-step example of the operation of the "credit card" method and configuration as shown in the flow chart of FIG.4

FIG.4

1. **Start:** Customer applies for credit / debit card, checking account, automated bank debit order;
2. **Choice:** Customer is offered the donation service that will automatically calculate and collect a portion of small change for every purchase made, collected on a monthly basis or as arranged with the bank. Customer can also opt to donate a fixed flat rate (or both) on a weekly, monthly or as otherwise arranged;
3. **Action:** Customer makes use of credit card service and generates an account payable;
4. **Action:** Small change donation is automatically calculated according to the size of the purchase/s and payable by months end;
5. **End:** Customer receives account statement with cost of purchases and donation/s made.

While embodiments of the invention have been described in detail, it will be evident to those skilled in the art that some aspects of the invention may be embodied somewhat differently, but without departing from its original intent of seamless and effortless small change collecting dynamics.

PATENT CLAIMS

What is claimed is:

1. A retail system, comprising:

A cash register,

- 1.1. Entry means in the cash register for entering an amount corresponding to a price of a product into the cash register and for entering an amount corresponding to cash being paid;
- 1.2. Calculating means in the cash register for determining existence of an excess cash payment;
- 1.3. Automatic pre-configured calculating means to apportion small change donations in accordance to the size of the purchase made; apportioning at least a part of the excess cash payment, and/or extra donations as indicated;
- 1.4. Registering means to store and indicate all transactions made, products sold, money received, small change returned, donations made; and dates relevant;
- 1.5. Printing means reflecting products purchased, money given, small change received, donations made, and dates relevant;
- 1.6. A cash register keyboard or bar code reader or any other means to enter or register the cost of products purchased;
- 1.7. A cash register keyboard or credit card reader or any other means to enter or register the amount of money received for the purchase;
- 1.8. A cash register calculator configured to deduct the cost of goods purchased from money received and to indicate the balance thereof;
- 1.9. A keyboard key or activation means to manually enable the automatic small change rounding up donation method;
- 1.10. A keyboard key or activation means to manually enable the donations only or extra donation method;
- 1.11. A keyboard key or de-activation means to manually disable the automatic small change rounding up donation method;
- 1.12. A keyboard key or activation means to manually enable a cash back or donation refund option;
- 1.13. A system wherein said apportioning step includes returning small change from the excess payment, after apportionment, as cash;
- 1.14. A system wherein said printing step includes displaying the cash returned, and the small change or extra money donated.

A central computer/s,

- 1.15. Calculating and separating means for all retail related transactions from all donations made at all cash registers, in every branch, in every region, and in the nation;
- 1.16. Organizing and administering means for all transaction data with regard to products sold or services rendered, money received, small change returned, and donations made;
- 1.17. Control of donations collected means, which is made payable into external "collection company" bank account at pre arranged intervals;
- 3.1. Data storage means to back up and safeguard all retail transaction activities relating to donation contributions.

1.18. A communication system,

- 1.19. Transponding or sending means for communicating transaction data concerning donations made at every participating retailer branch, in every region, and the nation, to the databases of the head offices for said organizations;
- 1.20. Transponding or sending means for communicating transaction data concerning donations made from central computer/s of the head offices of participating retailers to the "collection company" database;
- 1.21. Transponding or sending means for requesting participating retailer head offices to electronically transfer collected donation money into "collection company" bank account.

2. A retail method or process, comprising:**Point of sale operating means,****Scenario 1: Automated Rounding Up Donation**

Note: "Automated Rounding Up Donation" method is enabled by default before purchase.

- 2.1. Receive goods selected by customer for purchase;
- 2.2. Enter cost of goods selected with keyboard, barcode scanner or any other electronic means;
- 2.3. Calculate cost of all products selected;
- 2.4. Indicate cost of all products selected on display panel;
- 2.5. Receive money as payment for goods selected by customer;
- 2.6. Enter money received by keyboard, or any other electronic means;
- 2.7. Money received exceeding price of goods selected, automatically activates the rounding up donation formula, otherwise nothing needs to happen;
- 2.8. A new and nominally rounded up small change total is indicated by cash register display panel;
- 2.9. Cashier returns the balance of the small change after donation, together with a receipt indicating cost of products purchased, money received for payment, small change returned, amount of the donation made, place and date relevant.

Scenario 2: Automated Rounding Up Donation (Refused)

Note: “Automated Rounding Up Donation” method is enabled by default before purchase.

- 2.10. Receive goods selected by customer for purchase;
- 2.11. Enter cost of goods selected with keyboard, barcode scanner or any other electronic means;
- 2.12. Calculate cost of all products selected;
- 2.13. Indicate cost of all products selected on display panel;
- 2.14. Receive money as payment for goods selected by customer;
- 2.15. Enter money received by keyboard, or any other electronic means;
- 2.16. Money received exceeding price of goods selected, automatically activates the rounding up donation formula;
- 2.17. A new and nominally rounded up small change total is indicated by cash register display panel;
- 2.18. Customer refuses automated donation;
- 2.19. Cashier press the “De-activation Button” and disables the automated rounding up donation method for said customer;
- 2.20. Cashier returns the balance of the small change without donation, together with a receipt indicating cost of products purchased, money received for payment, small change returned, place and date relevant.

Scenario 3: Manually Activated Rounding Up Donation

Note: “Automated Rounding Up Donation” method is disabled by default before purchase.

- 2.21. Receive goods selected by customer for purchase;
- 2.22. Enter cost of goods selected with keyboard, barcode scanner or any other electronic means;
- 2.23. Calculate cost of all products selected;
- 2.24. Indicate cost of all products selected on display panel;
- 2.25. Receive money as payment for goods selected by customer;
- 2.26. Enter money received by keyboard, or any other electronic means;
- 2.27. Cashier asks customer if he/she would like to donate;
- 2.28. Upon “yes” the cashier presses the “Manual Donation” button to enable the automatic rounding up donation formula. (Upon “no” the transaction continues as normal, but without a donation);
- 2.29. Money received exceeding price of goods selected, automatically activates the rounding up donation formula, otherwise nothing needs to happen;
- 2.30. A new and nominally rounded up small change total is indicated by cash register display panel;

- 2.31. Cashier returns the balance of the small change after donation, together with a receipt indicating cost of products purchased, money received for payment, small change returned, amount of the donation made, place and date relevant.

Scenario 4: Donations Only

- 2.32. Cashier receives money as donation from customer;
- 2.33. Cashier enters amount of money received by keyboard, or any other electronic means;
- 2.34. Cashier presses the “Donation Only” button to register donation made;
- 2.35. A donation total is indicated by cash register on display panel;
- 2.36. Cashier issues a receipt indicating amount of donation made, place and date relevant.

Scenario 5: Cash Back

Note: Money is refundable only if requested before next customer transaction takes place.

- 2.37. Customer demands donation money be returned;
- 2.38. Cashier collects customer receipt;
- 2.39. Cashier presses “Cash Back” button;
- 2.40. Cashier returns donation made;
- 2.41. Cashier issues new amended receipt indicating cost of products purchased, money received for payment, small change returned, and date relevant.

Entry means,

- 2.42. “De-Activation” key. Used when customer refuses or declines use of donation service offered. Applies only when “Automated Rounding Up Donation” method is enabled by default before purchase;
- 2.43. “Activation” key. Used when customer agrees to donation service offered. Applies only when “Automated Rounding Up Donation” method is disabled by default before purchase;
- 2.44. “Donation Only” key. Used when customer wants to make a donation only, without purchasing anything. Applies whenever requested, and can be added to the amount as calculated by the “Automated Rounding Up Donation” method if also enabled;
- 2.45. “Cash Back” key. Used when customer wants to have his donation given returned. Applies only when customer claims donation before next customer transaction is registered.

Calculating means,

- 2.46. Keyboard keys, or any other electronic calculating method used to add, subtract, multiply, divide or perform any other mathematical equation for the purposes of registering and performing a retail or business transaction result.

Apportioning means,

- 2.47. A method to apply the following formula, system, and rules to a donation transaction;

$$X = (\text{Purchase Total} / 100)$$

$$X = (\$20 / 100) \quad \dots \text{or } (\$20 / 200, 300, 400, 500, 600, 700, 800, 900, 1000 \text{ etc.})$$

$$X = \$00,20c$$

Rule: Donation amount never exceeds 99c per transaction, regardless of size of purchase, unless expressly authorized to offset specific lack of monetary value.

Rule: Donation amount is established and based on the size of the purchase amount, which is then subtracted from the usual excess payment received.

Rule: If no excess payment is received, no calculation takes place.

Rule: If excess money is less than that owed to donation based on purchase amount, all available excess money is rounded up for collection, and no small change is due to customer.

Registering means,

- 2.48. Automatic recording of donations made in cash register database;
 2.49. Automatic recording of donations made in central computer of retailer outlet;
 2.50. Automatic recording of donations made in central computer of retailers regional office;
 2.51. Automatic recording of donations made in central computer of retailer's national office.

Donation means,

- 2.52. As described in point 2 "Point of sale operating means"

Refusal means,

- 2.53. As described in point 2 "Point of sale operating means"

Cash back means,

- 2.54. As described in point 2 "Point of sale operating means"

Printing means,

- 2.55. Automatic printing of donations made on receipts issued;
 2.56. Automatic printing of donations made on internal cash register duplicate receipts.

Communication means,

- 2.57. An electronic IT communications network as prescribed in point 1 "A communication system".

3. A banking system, comprising:

A central computer/s,

- 3.2. Calculating and separating means for all bank related transactions, such as credit card, debit card or otherwise, from all donations made via customer pre-arrangement, in every branch, in every region, and in the nation;
- 3.3. Organizing and administering means for all transaction data with regard to products sold, services rendered, money received, and donations made;
- 3.4. Control of donations collected means, which is made payable into external "collection company" bank account at pre arranged intervals;
- 3.5. Data storage means to back up and safeguard all bank transaction activities relating to donation contributions.

A communication system,

- 3.6. Transponding or sending means for communicating transaction data concerning donations made at every participating bank group branch, in every region, and the nation, to the databases of the head offices for said organizations;
- 3.7. Transponding or sending means for communicating transaction data concerning donations made from central computer/s of the head offices of participating bank groups to the "collection company" database;
- 3.8. Transponding or sending means for requesting participating bank group head offices to electronically transfer collected donation money into "collection company" bank account.

4. A banking method or process, comprising:

Point of sale operating means,

- 4.1. Sale of banking services such as credit card, debit card, checking and internet banking at banking branches, by mail, over the internet, or any other communication manner;
- 4.2. Donation options offered and linked to the use of said banking services, and communicated to new and old customers by the same means as in point 4.1

Entry means,

- 4.3. Physical applications for services and donation options;
- 4.4. Electronic applications for services and donation options;
- 4.5. Telephonic applications for services and donation options;
- 4.6. Any other communication means to apply for said services and donation options.

Calculating means,

- 4.7. Any electronic calculating method used to add, subtract, multiply, divide or perform any other mathematical equation for the purposes of registering and performing a banking transaction result.

Apportioning means,

- 4.8. A method to apply the following formula, system, and rules to a donation transaction;

$$X = (\text{Purchase Total} / 100)$$

$$X = (\$20 / 100) \quad \dots \text{or } (\$20 / 200, 300, 400, 500, 600, 700, 800, 900, 1000 \text{ etc.})$$

$$X = \$00,20c$$

Rule: Donation amount never exceeds 99c per transaction, regardless of size of purchase, unless expressly authorized to offset specific lack of monetary value.

Rule: Donation amount is established and based on the size of the purchase amount, and added as such to the customer account.

Rule: Donation can be made as a flat rate per transaction/s, or by formula applied per transaction/s.

Registering means,

- 4.9. Daily electronic recordings and backups on branch, regional, and national office databases.

Donation means,

- 4.10. Donations are made during use of banking services provided, such as purchasing with the use of credit cards, debit cards, checks etc.
- 4.11. Donations are calculated and apportioned in accordance with the formula or flat rate method as described in point 4.8

Refusal means,

- 4.12. During application process as described in point 4.1 and 4.2

Cash back means,

- 4.13. Not applicable.

Printing means,

- 4.14. Monthly statements received by mail.

Communication means,

- 4.15. An electronic IT communications network as prescribed in point 3 "A communication system".

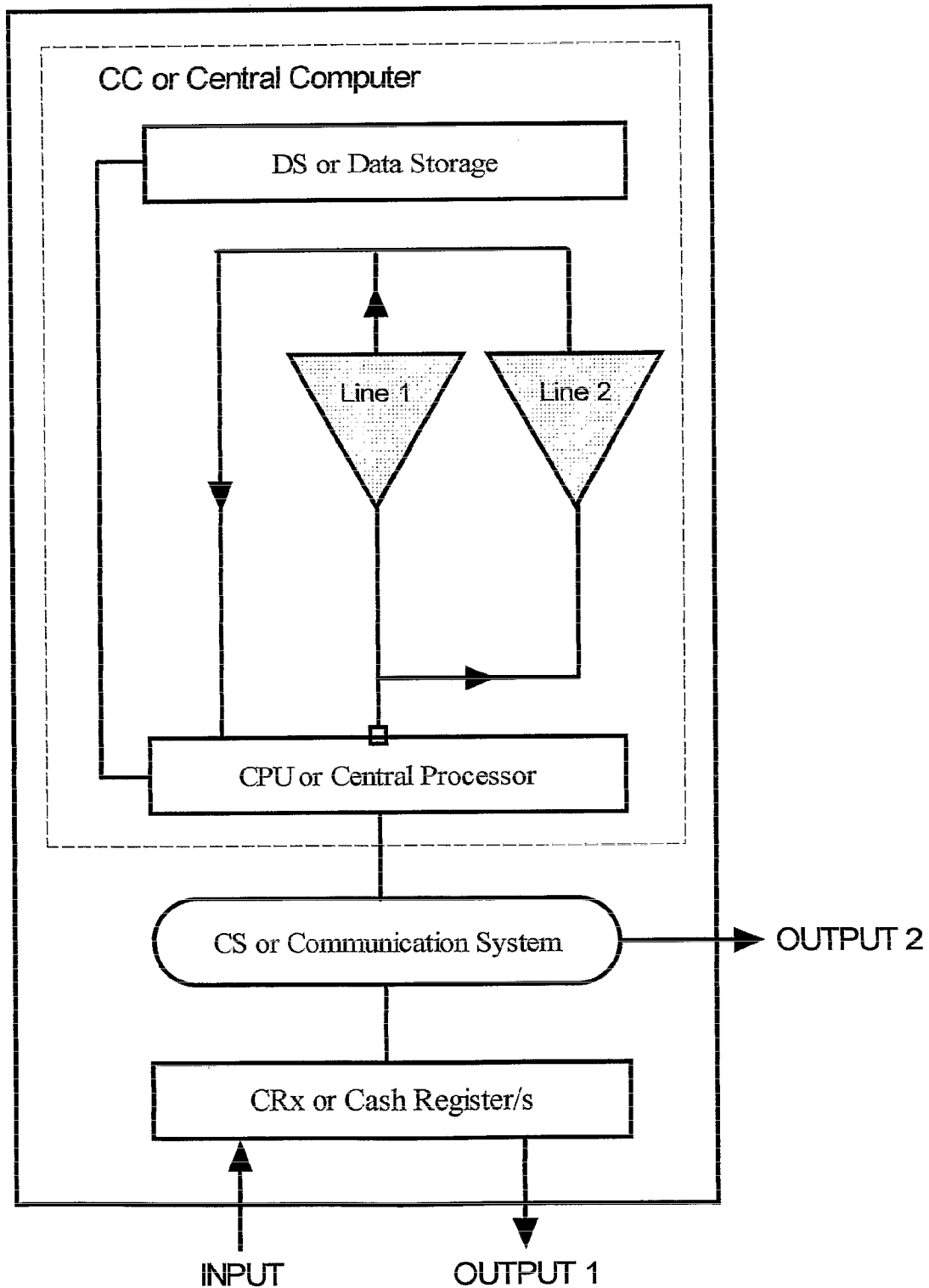
PATENT DRAWINGS**FIG.1 Block diagram of a system embodying retail store related features of the invention.**

FIG.2 Consecutive flow diagrams of the steps that take place in CRx of FIG.1

Fig.2.1 Point Of Sale Cash Register
(Choice to contribute indicated before action)

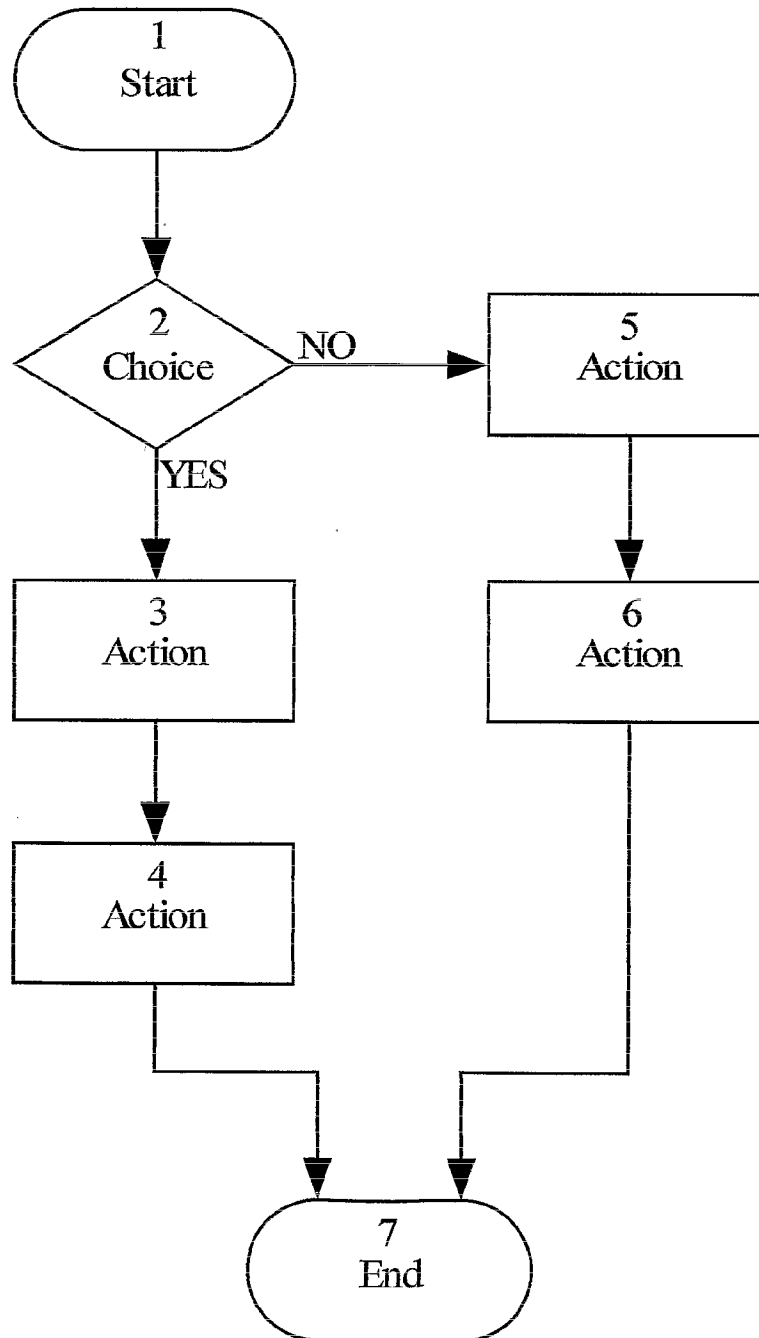


Fig.2.2 Point Of Sale Cash Register (CRx)
(Choice to contribute pre-automated as yes, declined before or after first action.)

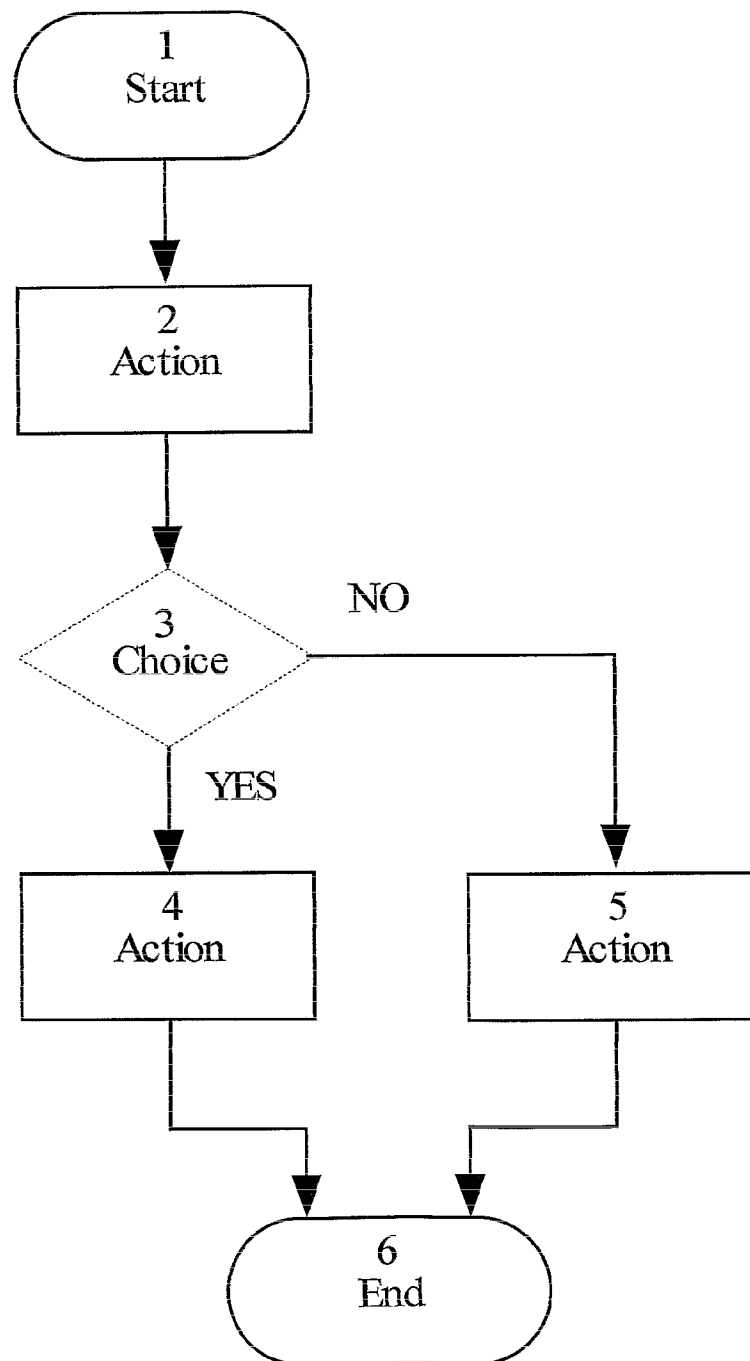


FIG.3 Block diagram of a system embodying features of the invention for generating donations from credit card or electronic payment transactions.

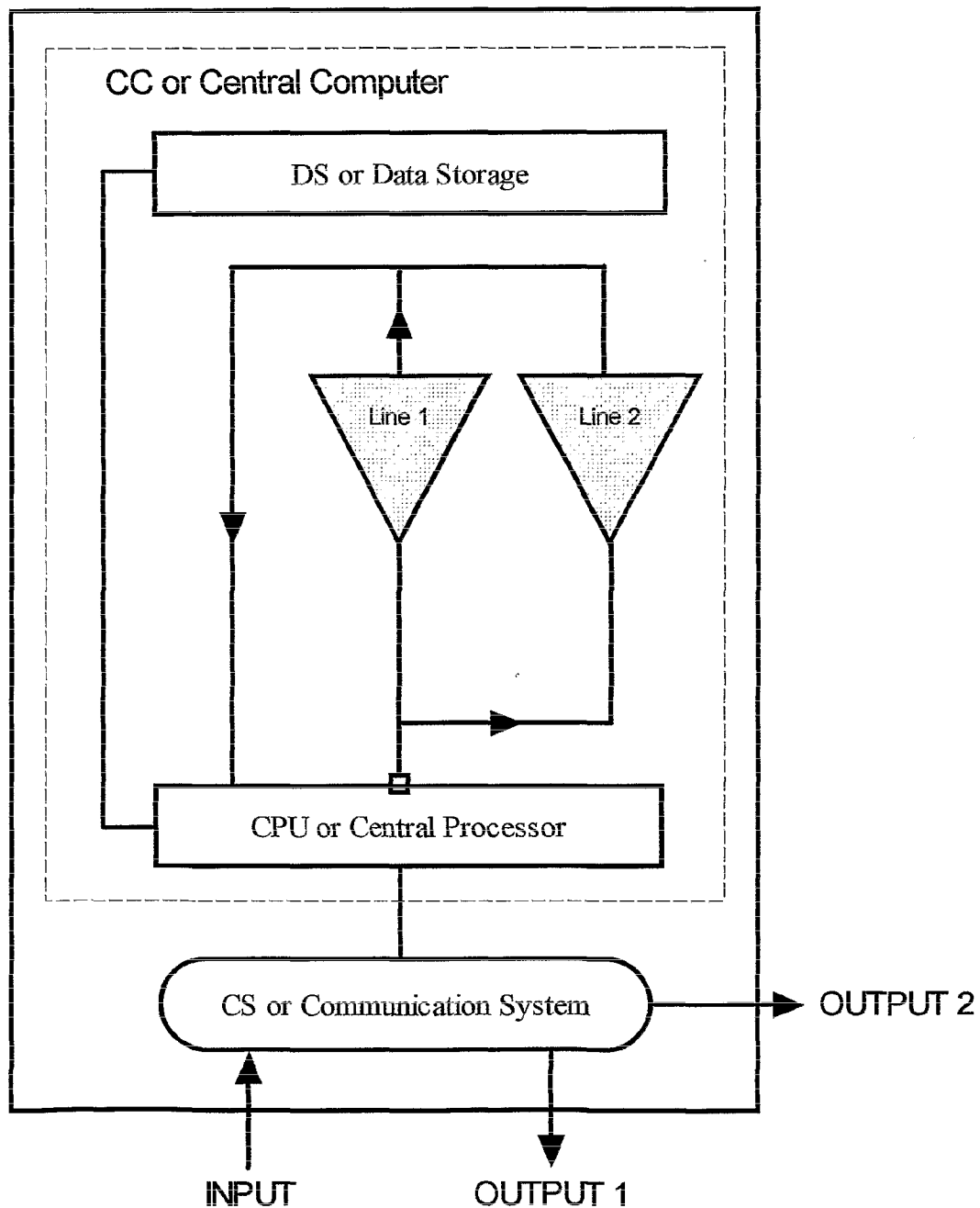
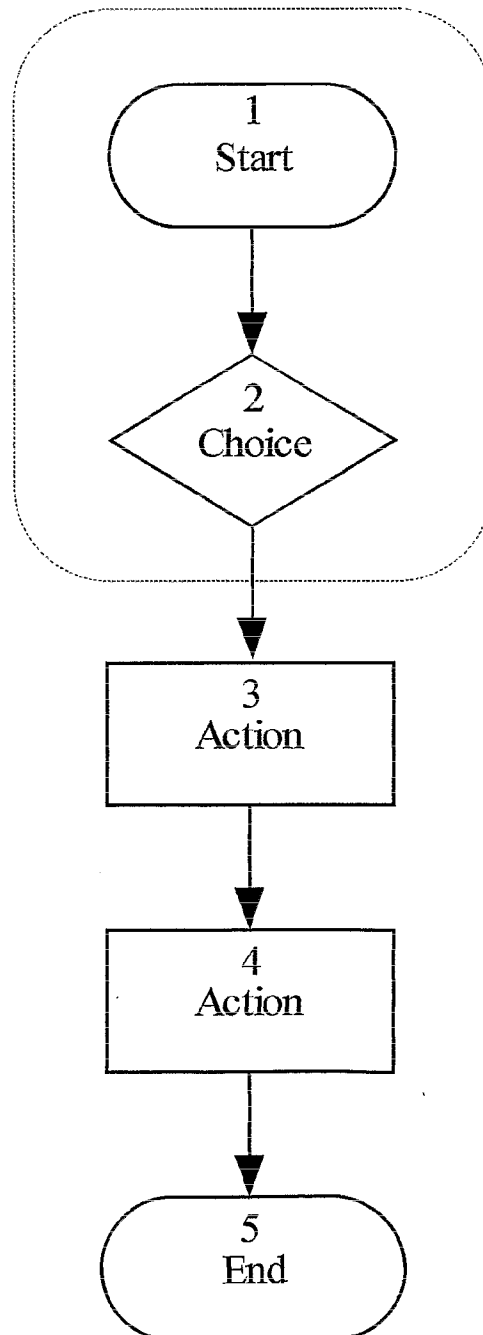


FIG.4 Flow diagram of the process that take place in CPU of FIG.3



INTERNATIONAL SEARCH REPORT

International Application No

PCT/ZA 01/00203

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G07G1/14 G07G1/00 G07F19/00 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G07G G07F G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 112 191 A (BURKE BERTRAM V) 29 August 2000 (2000-08-29) the whole document ---	1-4
X	WO 00 21009 A (OKUM RYAN J) 13 April 2000 (2000-04-13) page 6, line 12 -page 7, line 8 page 10, line 4 -page 15, line 18 page 22, line 5 -page 26, line 7; claims; figures ---	1,2
X	US 5 466 919 A (HOVAKIMIAN HENRY) 14 November 1995 (1995-11-14) the whole document ---	3,4
	--- -/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

5 September 2002

Date of mailing of the international search report

12/09/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Guivol, O

INTERNATIONAL SEARCH REPORT

International Application No

PCT/ZA 01/00203

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 085 475 A (INNOVATRON) 21 March 2001 (2001-03-21) page 4, line 26 -page 6, line 34; claims; figure 1 ---	1-4
A	WO 93 08546 A (BONAVITACOLA LINO) 29 April 1993 (1993-04-29) the whole document ---	1-4
A	WO 93 14476 A (STEPHEN IND INC OY) 22 July 1993 (1993-07-22) the whole document ---	1-4
A	US 5 546 303 A (HELBLING EDWARD) 13 August 1996 (1996-08-13) the whole document -----	1,2

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/ZA 01/00203

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6112191	A	29-08-2000	US 5621640 A	15-04-1997
			AU 5670696 A	18-11-1996
			CA 2252638 A1	31-10-1996
			EP 0850456 A1	01-07-1998
			JP 11505343 T	18-05-1999
			NZ 335926 A	23-02-2001
			WO 9634358 A1	31-10-1996
			US 6088682 A	11-07-2000
WO 0021009	A	13-04-2000	AU 6415199 A	26-04-2000
			WO 0021009 A1	13-04-2000
US 5466919	A	14-11-1995	NONE	
EP 1085475	A	21-03-2001	FR 2798498 A1	16-03-2001
			EP 1085475 A1	21-03-2001
			JP 2001109822 A	20-04-2001
WO 9308546	A	29-04-1993	IT 1251621 B	17-05-1995
			WO 9308546 A1	29-04-1993
WO 9314476	A	22-07-1993	FI 103 U1	12-05-1992
			FI 264 U1	16-09-1992
			AT 154155 T	15-06-1997
			AU 3353693 A	03-08-1993
			CA 2127985 A1	22-07-1993
			DE 69311308 D1	10-07-1997
			DE 69311308 T2	18-12-1997
			EP 0623235 A1	09-11-1994
			FI 265 U1	16-09-1992
			FI 943384 A	15-09-1994
			WO 9314476 A1	22-07-1993
			JP 7506684 T	20-07-1995
			NO 942648 A	31-08-1994
			NZ 246614 A	25-09-1996
US 5546303	A	13-08-1996	US 5555497 A	10-09-1996
			US 5724518 A	03-03-1998